

CLAIMS:

1. An aqueous hydrogen peroxide solution comprising:
 - i) less than 50 wppm alkali metals, alkaline earth metals or combinations thereof in total, irrespective whether the alkali metals or alkaline earth metals are present in cationic or complex form;
 - ii) less than 50 wppm of amines having a pK_B of less than 4.5 or the corresponding protonated compounds in total; and
 - iii) at least 100 wppm anions or compounds that can dissociate to form anions in total,whereby the wppm are based on the weight of hydrogen peroxide.
2. The aqueous hydrogen peroxide solution of claim 1, wherein the amount of components of group i) in total is less than 40 wppm, based on the weight of hydrogen peroxide.
3. The aqueous hydrogen peroxide solution of claim 1, wherein the amount of components of group i) in total is less than 35 wppm, based on the weight of hydrogen peroxide.
4. The aqueous hydrogen peroxide solution of claim 1, wherein the amount of components of group ii) in total is less than 40 wppm based on the weight of hydrogen peroxide.
5. The aqueous hydrogen peroxide solution of claim 1, wherein the amount of components of group ii) in total is less than 30 wppm based on the weight of hydrogen peroxide.

6. The aqueous hydrogen peroxide solution of claim 1, wherein the amount of components of group ii) in total is less than 20 wppm based on the weight of hydrogen peroxide.

7. The aqueous hydrogen peroxide solution of claim 1, wherein the amount of components of group ii) in total is less than 10 wppm based on the weight of hydrogen peroxide.

8. The aqueous hydrogen peroxide solution of claim 1, wherein the amines are selected from the group consisting of primary, secondary and tertiary alkyl amines.

9. The aqueous hydrogen peroxide solution of claim 1, further comprising:
iv) at least 100 wppm of bases having a pK_B of at least 4.5 or the corresponding protonated compounds in total based on the weight of hydrogen peroxide.

10. The aqueous hydrogen peroxide solution of claim 9, wherein the amount of components of group iv) in total is 3000 wppm at most, based on the total weight of hydrogen peroxide.

11. The aqueous hydrogen peroxide solution of claim 9, wherein the amount of components of group iv) in total is from 150 to 2000 wppm, based on the total weight of hydrogen peroxide.

12. The aqueous hydrogen peroxide solution of claim 9, wherein the amount of components of group iv) in total is from 200 to 1500 wppm, based on the total weight of hydrogen peroxide.

13. The aqueous hydrogen peroxide solution of claim 9, wherein the amount of components of group iv) in total is from 300 to 1200 wppm, based on the total weight of hydrogen peroxide.

14. The aqueous hydrogen peroxide solution of claim 9, wherein the bases of group iv) are selected from organic amines and amides having a pK_B of at least 4.5, organic hydroxylamines having a pK_B of at least 4.5, ammonia and hydroxylamine.

15. The aqueous hydrogen peroxide solution of claim 14, wherein the bases of group iv) is ammonia.

16. The aqueous hydrogen peroxide solution of claim 1, wherein the concentration of hydrogen peroxide is more than 50% by weight based on the total weight of the hydrogen peroxide solution.

17. The aqueous hydrogen peroxide solution of claim 16, wherein the concentration of hydrogen peroxide is more than 60% by weight based on the total weight of the hydrogen peroxide solution.

18. The aqueous hydrogen peroxide solution of claim 16, wherein the concentration of hydrogen peroxide is from 60 to 70% by weight by weight based on the total weight of the hydrogen peroxide solution.

19. A process for the preparation of a hydrogen peroxide solution containing:
- i) less than 50 wppm alkali metals, alkaline earth metals or combinations thereof in total, irrespective whether the alkali or alkaline earth metals are present in cationic or complex form;
 - ii) less than 50 wppm of amines having a pK_B of less than 4.5 or the corresponding protonated compounds in total; and
 - iii) at least 100 wppm anions or compounds that can dissociate to form anions in total,

where the wppm are based on the weight of hydrogen peroxide according to the anthraquinone loop, said process for the preparation of hydrogen peroxide solution process comprising:

- a) hydrogenating a working solution comprising an organic solvent or mixture of organic solvents and one or more active anthraquinone compounds to obtain a hydrogenated working solution,
- b) oxidizing the hydrogenated working solution to form hydrogen peroxide,
- c) extracting hydrogen peroxide with water to obtain extracted aqueous hydrogen peroxide solution,
- d) stabilizing the extracted aqueous hydrogen peroxide solution,
- e) concentrating the aqueous hydrogen peroxide solution to a concentration of hydrogen peroxide of at least 50% by weight based on the weight of the hydrogen peroxide solution,
- f) drying of the working solution after extracting hydrogen peroxide, and
- g) regenerating and purifying the working solution,

whereby during the entire process neither alkali or alkaline earth metals nor amines having a pK_B of less than 4.5 or compounds forming such amines during the process are introduced in amounts that result in amounts of

i) 50 wppm or more of alkali metals, alkaline earth metals or combinations thereof in total, irrespective whether the alkali or alkaline earth metals are present in cationic or complex form; or

ii) 50 wppm or more of amines having a pK_B of less than 4.5 or the corresponding protonated compounds in total;

in the resulting aqueous hydrogen peroxide solution, where the wppm are based on the weight of hydrogen peroxide.

20. The process of claim 19, wherein

- the working solution is essentially free of organic nitrogen compounds,
- drying of the working solution in step f) is conducted without using alkali or alkaline earth metal compounds, and
- regeneration of the working solution in step g) is done by treating with active aluminum oxide.

21. The process of claim 20, wherein

drying is conducted by water evaporation in vacuum.

22. The process of claims 20, wherein no further purification of the extracted aqueous hydrogen peroxide solution is carried out.

23. The process of claims 21, wherein no further purification of the extracted aqueous hydrogen peroxide solution is carried out.

24. The process of claim 19, wherein at least one base having a pK_B of at least 4.5 without containing alkali or alkaline earth metals is added in an amount resulting in at least 100 wppm of such bases or corresponding protonated compounds in total based on the weight of hydrogen peroxide in the final aqueous hydrogen peroxide solution.

25. The process of claim 24, wherein the base is selected from the groups consisting of organic amines and amides having a pK_B of at least 4.5, organic hydroxylamines having a pK_B of at least 4.5, ammonia and hydroxylamine.

26. The process of claim 25, wherein the base is ammonia.

27. The process of claim 24, wherein the base is added either during the preparation of the hydrogen peroxide solution or at any stage between preparation and final use of the hydrogen peroxide solution.